



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,346	02/21/2002	Osamu Baba	020123	6089

23850 7590 12/30/2003

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

VU, QUANG D

ART UNIT PAPER NUMBER

2811

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,346

Applicant(s)

BABA ET AL.

Examiner

Quang D Vu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 10/24/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US

Patent No. 6,170,154 to Swarup in view of US Patent No. 5,631,478 to Okumura.

Swarup (figure 5B) teaches a multilayered wiring structure for high structure for high frequency semiconductor devices, comprising:

a substrate (146);

a ground plate (144) formed above the substrate (146), having a potential fixed at the ground potential;

a plurality of wiring layers, each of which is alternately stacked with an insulating interlayer formed above the substrate (146), the wiring layers combine with the ground plate to form transmission lines; and

at least one separation plate (a patterned layer formed on the ground [152]) being stacked between the wiring layers which mutually cross, with insulating interlayers (150, 154) formed therebetween, the at least one separation plate (a patterned layer formed on the ground [152]) having a potential fixed at the ground potential (152),

Art Unit: 2811

wherein the at least one separation plate (a patterned layer formed on the ground [152]) is selectively provided at a crossing portion ([152], [156] and [24]) where the wiring layers mutually cross.

Swarup differs from the claimed invention by not showing a semiconductor substrate. However, Okumura (figure 5A) teaches a semiconductor substrate (111) (column 5, lines 11-12). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Okumura into the device taught by Swarup because the semiconductor substrate is a well known in the art.

Regarding claim 2, Swarup differs from the claimed invention by not showing the length and width dimensions of the at least one separation plate are sufficiently smaller than the length of each of the wiring layers used in forming the transmission lines above the semiconductor substrate so as to not significantly interfere with transmission line characteristics of the wiring layers. It would have been obvious to one having ordinary skill in the art at the time the invention was made for the length and width dimensions of the at least one separation electrode are sufficiently smaller than the length of each of the wiring layers used in forming the transmission lines above the semiconductor substrate so as to not significantly interfere with transmission line characteristics of the wiring layers because it prevents the loss of the transmission. Furthermore, it has been that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Art Unit: 2811

Regarding claim 3, Swarup teaches additional crossing portions ([152] and [24], [152] and [28], [152] and [156]) where the wiring layers mutually cross, wherein each of the crossing portions had an individual separation plate (a patterned layer formed on the ground [152]).

Regarding claim 4, Swarup teaches the separation plates (left and right portion of patterned layer formed on the ground [152]) are electrically interconnected.

Regarding claim 5, Swarup teaches the separation plates (left and right portion of patterned layer formed on the ground [152]) have a potential, which is fixed at the ground potential (152) by one of the wiring layers acting as a common electrode (a patterned layer formed on the ground [152]).

Regarding claim 6, Swarup teaches the separation plates (left and right portion of patterned layer formed on the ground [152]) are provided on one of the insulating interlayers (150), and are electrically interconnected by wiring extended (left and right portion of patterned layer are separation electrodes and the middle portion of patterned layer is a wiring connecting between left and right portion of patterned layer) on the insulating interlayer (150).

Regarding claim 8, Swarup teaches a single electrode (a patterned layer formed on the ground [152]) is provided for all of the crossing portions ([152] and [24], [152] and [28] and [152] and [156]).

Allowable Subject Matter

3. Claims 7, 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2811

4. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach or fairly suggest, either singularly or in combination, at least the limitation "the separation electrodes are provided on different insulating interlayers, and are electrically interconnected by at least one through hole. The second major difference between the claimed invention and the prior art is a multilayered wiring structure, comprising: the crossing portions are positioned at different levels, and the separation electrodes are provided on those of the insulating interlayers which are provided for all of the crossing portions. The third major difference between the claimed invention and the prior art is a multilayered wiring structure, comprising: the crossing portions are positioned at different levels, and the single separation electrode is provided on one of the insulating interlayers which is provided for all of the crossing portions.

Response to Arguments

Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

Art Unit: 2811

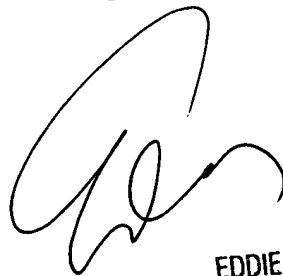
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 703-305-3826. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 703-308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

qv
December 19, 2003



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800